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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Henry G. Johnson et al

Docket No.: C-2960

Serial No.: 10/804,342

Art Unit: 1745

Filed: March 19, 2004

Examiner: Dove, Tracy Mae

Title: Turbocompressor Impelling Fuel
Recycle in Fuel Cell Power PlantDECLARATION UNDER 37 CFR 1.132Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Paul R. Marglott declares that:

1. He resides at 32 Sele Drive, South Windsor, CT 06074.
2. He has a B.S. degree in Chemical Engineering, a M.S. in Mechanical Engineering, has been working in the field of fuel cells and related arts for over 23 years, is currently engaged in that field on behalf of UTC Power Corporation, South Windsor, CT, and is considered an expert in that field by his peers.
3. He is a co-inventor of the Marglott et al reference.
4. He has reviewed and familiarized himself with the matter claimed in the subject patent, Marglott et al publication US 2005/0164069 A1 (Marglott) and Keefer publication US 2003/0143448 A1.
5. Marglott discloses fuel recycle impellers which include only a pump 30 in Figs. 1-4, 6, 9 and 13, an ejector 30b in Fig. 10, and an electrochemical hydrogen pump 30c in Fig. 11. That these are the only three impellers is seen in the last three lines of paragraph 0001, in paragraphs 0011-0013, and in the last paragraphs of claims 1 and 10. Marglott does not disclose a turbocompressor in the fuel recycle loop. Also, Marglott does not disclose a turbine driven by the source of hydrogen-rich fuel gas or by the oxidant reactant gas exhaust flowing

from the oxidant flow fields. Margiott does not disclose the matter in the last paragraph of claim 1 of the subject application.

6. In paragraph 0109, Keefer discloses that the anode exhaust recycle loop which includes turbines 240, 242 is driven by the anode exhaust; those turbines drive a compressor 244 in that loop. Anode exhaust driving turbines is disclosed in the embodiments of Figs. 6-10, Fig. 13 and Fig. 14. The embodiments of Figs. 11 and 12 have a thermal bottoming device which of course includes a turbine (not described) that drives the compressors 320, 324, 270 and 244, which turbine, however, is driven by anode exhaust. Thus, in all embodiments, the power to drive turbines is derived from the anode exhaust. This is opposite to the matter set forth in claim 1 of the subject application.

7. In all of the embodiments of Keefer, the anode fuel at an inlet 230 does not pass through any turbine, but rather flows through enthalpy recovery 224, 225 and a fuel enhancement 232 directly to the anode. In all of the embodiments except Figs. 11 and 12, the cathode exhaust flows through enthalpy recovery devices 224, 225 to an exhaust outlet 341. In the embodiments of Figs. 11 and 12, the cathode exhaust is used to burn heavy product gas from a pressure swing absorber 204, and then passes through the enthalpy recovery 224, 225 to the exhaust outlet 341. In none of the embodiments is the cathode exhaust used to drive a turbine. Thus, the subject matter of the last paragraph in claim 1 is completely lacking in Keefer.

8. Because of the teachings of Keefer described in paragraphs 6 and 7 hereinbefore, one skilled in the fuel cell arts would not be motivated to use any teaching in Keefer in a manner which would produce the matter set forth in claim 1 of the subject application.

9. Keefer does not suggest to one skilled in the fuel cell and related arts that hydrogen fuel recycle gas should be impelled in a turbocompressor in which the turbine is driven either by a source of hydrogen-rich gas or by the oxidant effluent flowing from oxidant flow field channels, as called for in the last paragraph of claim 1 of the subject application.

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10. All statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true and further that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.


Paul R. Margiott3/18/07
Date